

DOCUMENT RESUME

ED 295 648

IR 013 358

AUTHOR Januszewski, Alan
TITLE Linking Educational Philosophy with Micro-Level Technology: The Search for a Complete Method.
PUB DATE Jan 88
NOTE 19p.; In: Proceedings of Selected Research Papers presented at the Annual Meeting of the Association for Educational Communications and Technology (New Orleans, LA, January 14-19, 1988). For the complete proceedings, see IR 013 331.
PUB TYPE Viewpoints (120) -- Speeches/Conference Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Appropriate Technology; *Educational Philosophy; *Educational Principles; *Educational Technology; *Hidden Curriculum; Technological Literacy; *Theory Practice Relationship; *Values Clarification

ABSTRACT

Traditionally, educational technologists have not been concerned with social or philosophical questions, and the field does not have a basic educational philosophy. Instead, it is dominated by a viewpoint characterized as "technical rationality" or "technicism"; the most important assumption of this viewpoint is that science and technology are value-free. Critics argue that this is inaccurate, and that values are indeed being transmitted by educational technology through a hidden curriculum. In response to such criticism, a philosophy of technology can and should be developed. William Frankena's work provides a starting point for developing a more complete philosophy of educational technology. However, an effort must also be made to show the relationships between the differing aspects of philosophy beyond epistemology, metaphysics, and axiology. A complete philosophical framework can be used both to reduce the negative effects of a hidden curriculum, and to permit educational technologists to devise a process or hidden curriculum that is consistent with their social vision and that of their clients. Fifty-six references are provided. (EW)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED295648

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official
OERI position or policy.

Linking Educational Philosophy
With Micro-Level Technology:
The Search For A Complete Method

Alan Januszewski
Graduate Student
Syracuse University

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Michael Simonson

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

(Please Do Not Cite Without The Permission Of The Author)

A Paper Presented to The Research and Theory Division of
The Association For Educational Communication and Technology Conference

January 16 - 19, 1988, New Orleans, Louisiana Conference

IR013358

Introduction

Traditionally educational technologists have not been concerned with social or philosophical questions. Many of the decisions made by educational technology practitioners are based on an incomplete philosophical position or a position that is held unconsciously. Furthermore, because of the dynamic nature of the field, the definition of educational technology has been in evolution. The rapidly changing definitions of the field have not provided sufficient direction to practitioners. Additional guidance may be required to aid technologists in performing their role. This inquiry will pursue the question of the relationship of educational philosophy to educational technology. The paper attempts to present a conceptual framework through which educational technologists can address the philosophical concerns that are crucial to these professionals and those that they serve. I will discuss some of the criticisms of educational technology and trace them to a common root. An analysis of the practice reveals some underlying philosophical assumptions about the relationship of technology and education. With this at hand I will discuss the importance of philosophy in addressing this issue. The development of a complete philosophy for education will be advocated and an example of a complete philosophy of education will be reviewed. The conclusion will point out some of the opportunities for future inquiry into this issue.

This working paper is by no means exhaustive.¹ Issues of instructional technology or educational technology for the purposes of training and development in industry and the military are not considered. International settings are not taken into account. I am confining this discussion to American society because I am part of it, and it is more familiar to me than other societies. This does not exclude the application of this discussion beyond an American setting. However, this must still be researched.

Criticisms of Educational Technology

There are many criticisms of the field of Educational Technology. One of the main criticisms of technology as it is applied to instruction or education is that the technologists fail to concern themselves with the social and philosophical issues that are involved in the process of education. The literature suggests that these criticisms are often justified.

Social and philosophical critiques of educational technology have been classified in a number of different fashions. Three major categories of criticism are:

- 1) that it is dehumanizing, (Freire, 1970; Rogers, 1983; Apple, 1982);
- 2) that it fosters and sustains the ideological positions of the dominant factions of society, (Apple, 1979; Kleibard, 1977a);
- 3) that it perpetuates further dependence on technology, (Hyman, 1973; Hyman, 1974).

A number of lines of inquiry could be used to analyze these social and philosophical criticisms as they relate to educational technology, but time and space will not permit such an exhaustive study.

Since it appears that these stem from a common root, one can readily identify the criticisms of educational technology in this regard. This root, a common denominator for many of the social and philosophical criticisms of this field, has been called "Technicism" (Stanley, 1978) and "Technical Rationality" (Schon, 1983).

Manfred Stanley (1978) describes technicism as reflecting a particular attitude toward the relationship among science, technology, and human consciousness. Technicism is not a deliberate philosophical position. It is the antithesis of an intentionally evolved position. It is a view of the world based on "unconsciously taken for granted assumptions" that are the result of a "historical and cultural process rather than an individual or collective intellectual decision" (Stanley, 1978 p. 10). While Stanley discusses a number of ways to interpret technicism, his inquiry focuses on what he calls "pantechnicism" which he defines as "a view of the entire world being symbolically reconstituted as one interlocking problem solving system according to the dominate technological language of control" (Stanley, 1978 p.10).

Donald Schon (1983) uses the term "technical rationality" in very much the same way that Stanley uses "pantechnicism." Schon writes: "From the perspective of technology rationality, professional practice is a process of problem solving. Problems of choice or decision are solved through the selection of available means of the one best suited to the established ends. But with this emphasis on problem solving we ignore the setting, the process by which we define the decisions to be made, the ends to be achieved, and the means which may be chosen." (p. 39-40). Technical rationality is a form of technicism.

It is important to point out that neither Schon nor Stanley view technology or science as inherently evil. Their discussions focus on the assumptions (explicit/implicit) held by the individuals who investigate science and use technology. The model that currently dominates the investigation for educational technology is the systems approach (Fleshig, 1975). One might conclude that the systems approach that is used by many educational technologists is the target of this criticism. However, the inquiry into technicism reveals that there are other assumptions held by educational technologists that are questioned as well, particularly in the area of philosophy of science.

Technicism has as its base the philosophy of science known as positivism. This approach is based on three major assumptions:

- 1) that science, not philosophy, is the means for attaining knowledge;
- 2) that science, in practice, is the act of observing; and
- 3) that science and technology themselves are value neutral (Flew, 1979).

While all three are important to analyze, it is the third, that science and technology themselves are value neutral, which is particularly important to this paper.

Technicism is the root of the criticisms of educational technology. The assumption is that science and technology are value-neutral and therefore are not expected to transfer values. Technicism holds that only content is being transferred. Information transfer is the goal of technicist thought. Technicism holds that outcomes of utilizing technology are dependant on the intent of those that plan the use of technology. This conception ignores the possibility of a hidden curriculum. It is the failure to fully analyze the values that are implicit in the use of technology in education that opens the door for the accusations of dehumanization and the perpetuation of ideological and technological dependence that is then passed on to learners. Educational technologists must take up the question of what happens beyond their planned intentions and actions.

It is the belief held by some technologists, that technology and science are value neutral, that seems to be most problematic to critics of educational technology. An analysis of the literature show that the hidden curriculum, a mode of transferring values and assumptions, exists within our present educational system. (Jackson, 1968; Apple, 1977, 1979, 1983; Kliebard, 1977A, 1977B; Hyman, 1973, 1974; Rogers, 1969, 1983; Olds 1985; Silberman, 1970; Gerbner, 1974; Young, 1971, 1973; Vallance, 1974).

There has been little agreement among educators as to a definition of the hidden curriculum. The literature concerning the hidden curriculum extends in many varying directions. Several doctoral dissertations have attempted to categorize this literature and ultimately define the hidden curriculum. (Cowell, 1973; Weidemann, 1973; Bain, 1974; King, 1976). It is important to note that while there is some disagreement on definition there is agreement among educators that a tacit transfer of values does occur in our schools.

There are important considerations involved with the existence of the hidden curriculum for educational technologists. As Marshall McLuhan so aptly put it: "We are too concerned with using technique rather than considering the implications of technique" (1962, p. 19). Wilber Schramm followed with a sobering observation: "They can learn what they are intended to learn and also what they are not intended to learn." (1977, p.32). Schramm indicates the possibility that students may acquire undesired knowledge and skills.

Depending on the goals of the educational system, the values that are transferred may prove to be functional or dysfunctional. Dreeben (1968) provides a very positive view of the hidden curriculum and its usefulness in the schools and to society. He focuses on the structural characteristics of schools and how this structure fosters socially desirable norms. Pappert, (1980) outlines some steps for the development of a positive hidden curriculum in a computer-based education system. He emphasizes intellectual skills and the natural growth of the learners.

It would seem reasonable to believe that there are always both positive and negative aspects of a hidden curriculum in any educational system. It would seem equally reasonable to state that the analysis of the hidden curriculum should be a priority for educational technologists. There are opportunities to create meaningful learning experiences for students. The experiences need not be side effects of designed expository instruction. They can be designed so that the content of the particular lesson is subordinate to the process or the hidden curriculum of that lesson. However, this has not often been the case.

One reason why this problem of value transfer faces educational technology is the lack of guidance provided the professionals of the field by the very definition of the field. In a period of less than eight years the definition of the field has been altered such that educational technology has become, on paper, indistinguishable from definitions of 'instructional technology,' 'instructional development,' 'educational research,' and 'curriculum development.'

In 1970, the Presidential Commission on Instructional Technology defined instructional technology in two ways.

First, "In its more familiar sense it means the media born of the communication revolution which can be used for instructional purposes along side the teacher, the textbook, and the blackboard...the pieces that make up instructional technology: television, films, overhead projectors, computers, and the other items of hardware and software.

Second, and less familiar definition of instructional technology goes beyond any particular medium or device. In this sense instructional technology is more than the sum of its parts. It is the systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives based on research and human learning and communication and employing the combination of human and non-human resources to bring about more effective instruction."

The Association for Educational Communication and Technology in 1972 had defined educational technology as follows:

"A field involved in the facilitation of human learning through the systematic identification, development, organization, and utilization of a full range of learning resources and through the management of these processes. It includes, but is not limited to the development of instructional systems, the identification of existing resources and the management of these processes and the people who perform them."

The definition of educational technology as put forth by the Association for Educational Communication and Technology in 1977 states:

" Educational technology is a complex, integrating process involving people, procedures, ideas, devices, and organization for analyzing problems and devising, implementing, evaluating, and managing solutions to those problems involved in all aspects of human learning."

The practice of educational technology does not occur in a vacuum. Though not mentioned in any definitions, technology takes place in a socio-political environment directed toward specific goals. There are value implications tied to the definition of the field. There is value attached to each word in each definition. For example, the use of the words "development" and "management" have connotations which may be as completely unacceptable to some educationists as they are absolutely necessary for educational technologists. As values (explicit/implicit) change the definition of the field is likely to change.

A broad definition of the field need not be an insurmountable obstacle to the practice of technology by educationists, as long as we are aware of what values are implied. Personally, I welcome the opportunities that accompany a less structured field. It would seem logical, however, that as the definition broadens and provides less structure for the specifics of the practice that something else is needed to aid in the direction of the field. I would propose that a conscious philosophy be considered to help guide the practice of educational technologists.

Toward A Philosophy of Technology

There is nothing mysterious about developing a philosophy. Judge Benjamin Cardozo, (1921) paraphrases William James as having said that:

"Every one of us has in truth an underlying philosophy of life, even those of us to whom the names and the notions of philosophy are unknown and anathema. There is in each of us a tendency, whether you choose to call it philosophy or not, which gives coherence and direction to thought and action."

It would seem that all of us hold a philosophy. A value clarification exercise would reveal a number of values and philosophical principles that are within each one of us. The level of sophistication and the level of awareness of this philosophy might vary with each individual. While some might disagree with me, I do not believe that developing a consciousness about philosophy requires a high degree of technical skill. Further, it need not be reserved for those who hold graduate degrees. Do not infer that I am making light of such an enterprise; it is not an easy task. I believe it to be among the most important undertakings to which an individual can aspire. All people make value judgments. Few make a serious attempt to consciously develop a philosophy. Fewer still persevere and continue the questioning.

A conscious philosophy is generated as a result of one's need to understand and explain natural, social, and/or personal conditions. It will also act as a guide for one's actions and aspirations. Most people are enculturated into various philosophical frameworks which serve to direct their lives. To truly develop a philosophy one must search beyond the conceptions and assumptions that are currently held. A reflective self analysis is required. This investigation and/or formulation of alternative positions is a continual process based on the experience and reflection of the individual.

This constant "reconstruction" (Dewey, 1920) of thoughts and ideas of philosophy may be the reason for the popular belief that one may hold a particular philosophy and that one may do philosophy. To be sure, not all philosophers would agree with Dewey's assertion that "doing" philosophy and "holding" philosophy are the same thing. I will follow Dewey's lead and proceed with the assumption that there is an unnecessary dualism between these concepts, "doing" philosophy and "holding" philosophy. It is believed that the values implicit in ones actions, that which one does, are the same as one consciously believes, that which one holds. The actions one takes may be interpreted as expressing a held belief. If one is consistent between actions and belief, then philosophy is both a means and an end.

The question arises, "Why philosophy as a guide to practice, why not theory?" Victor Farganis (1975) states there are values implicit in any of the social sciences. Education may be considered a social science. These implicit value considerations are what give a particular theory or a conception meaning and prevent it from acting as a neutral vehicle. In short, theory is value laden. When theory is put into practice it is a philosophical act. Regardless of the intentions behind the act, values are articulated and may be transferred.

Education is often oriented to practical activity. Technologists often make decisions based on practical experience, but also based on their values (explicit/implicit). Practical experiences cannot provide them with the escape from an essential principle. "That principle addresses itself to the question of what we ought to do when we teach. This is particularly important in a technological society where the relationship between knowledge and human affairs is often obscured", (Kliebard, 1977b, p. 34). What "is" should not modify what "ought" to be. The present state of technology should not necessarily modify the goals and values of education. The state of practice should be made consistent with the goals and values of education.

Every human activity presupposes values that are essential to that activity. "Science, for example, presupposes the worth of knowing those things that science discovers. If you deny the proposition that these things are worth knowing, then there is no sense in doing scientific work" (Magee 1971 p. 147). The same can be said for technology as the application of science (Romisowski, 1981). It too presupposes values. From there it would follow that educational activities assume some principles and values that must be accepted if you are going to seriously consider them. These principles or values fall into two groups; those that are about the discussion of the school as an organization and its curriculum content and those that are concerned with ideas of teaching and learning. For example, the existence of school administrative systems presupposes that an authority structure is indeed worth having.

We need to spell out all of the elements pre-supposed by our actions. To paraphrase Socrates, unexamined education is not worth doing. Socrates concluded that few people really bother to undertake the inquiry necessary to know what they were about. Such might be the case with technists.

There are two major advantages in wanting to be clear about what one is trying to do. First is that, upon further examination it may turn out that one may not be doing what one really intends to do. Such self examination of educational efforts may suggest changes that could result in a more desirable type of educational technology than is currently practiced. The second, is that such an examination will enable practitioners to enter into discussions about their practice. The dialogue that should follow is bound to improve the quality and quantity of the wisdom and knowledge that goes into education and educational technology.

A value analysis must be undertaken. This can only be approached through a conscious effort by practitioners and researchers. But this clarification is never finished. As technology and education change at all levels, it would seem that the whole enterprise must constantly be re-examined. Since the central questions of instructional or educational technology are actually value questions, a philosophy which could function to help guide this practice would be of considerable help.

It is imperative for students and for society as a whole that practitioners in educational technology know and understand the idea of what it is they are doing and perhaps more important, why they are doing it.

Again, Dewey, (1938a) says:

"the difference between educational practices that are influenced by a well thought out philosophy and practices that are not so influenced is the difference between education conducted by some clear idea of the ends in the way of ruling attitudes of desire and purpose that are to be created and an education that is conducted blindly under the control of customs and traditions that have not been examined or in response to immediate social pressures." (p. 99).

Investigation into the conduct of educational practice should result in the beginning of an inquiry into the hidden curriculum. It is also a step toward identifying and understanding the technicist assumptions.

An Alternative: A Complete Philosophy for Education

It seems reasonable to think that the paradigm of wholes, that is system theory, (Bertalanffy, 1968) should be guided by a complete philosophy. The complete philosopher will not only analyze in the ways that have been described in languages and values, but will also speculate about the world as a whole; about goals, norms, and human experience providing some guide to action.

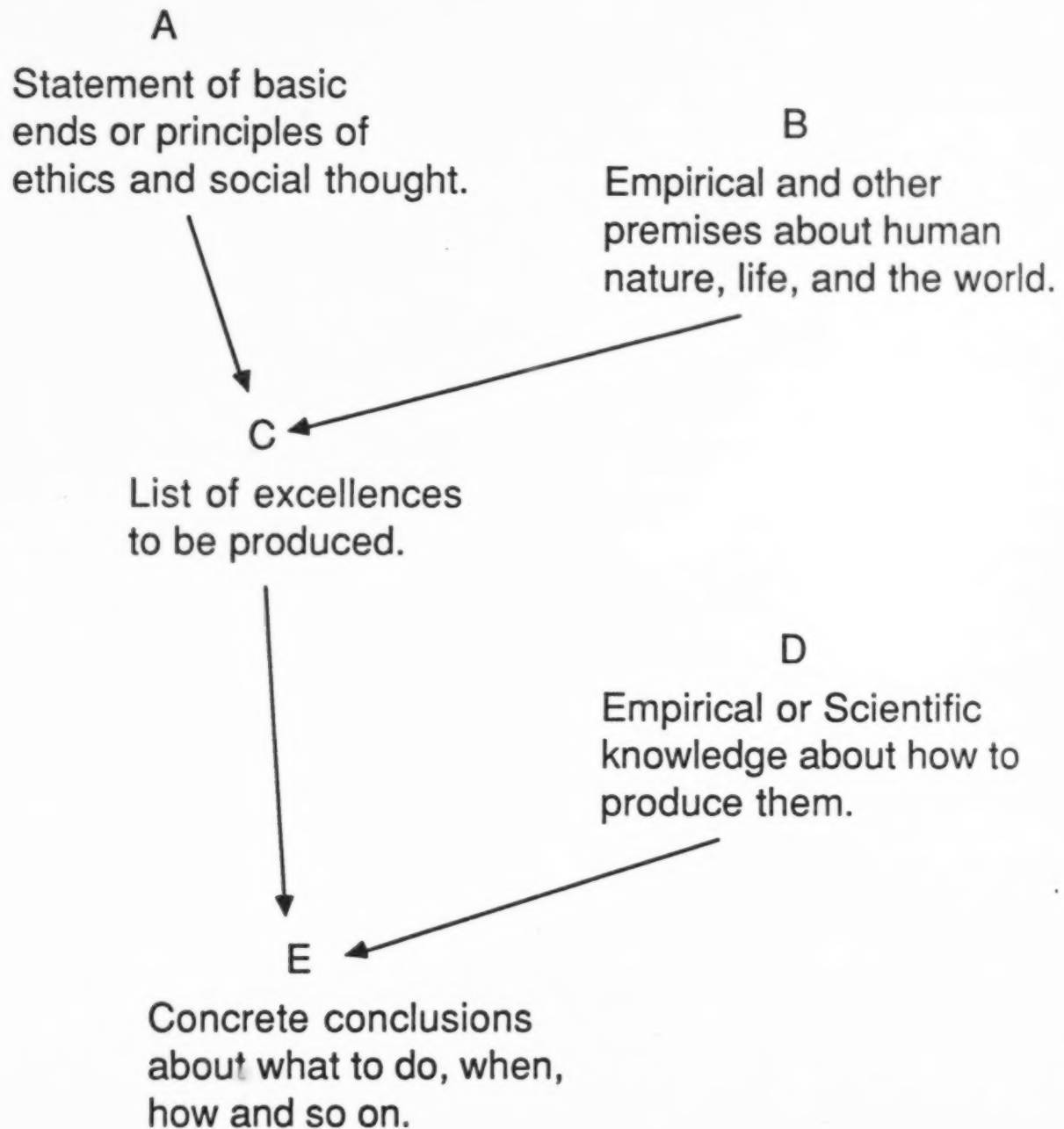
William Frankena provided a useful mapping of a more complete philosophy in his book Philosophy of Education (1965). In that book he identifies five points:

- a) a statement of basic ends or principles of ethics and social thought
- b) (empirical and other) premises about human nature, life, and the world
- c) a list of excellences to be produced
- d) scientific knowledge about how to produce them
- e) concrete conclusions about what to do, when, and how, and so on.

Frankena explains his overall outlook:

"Education is the process by which society makes of its members what is desirable that they should become... either in general or in so far as this may be called 'schools'." (p. 95).

Frankena's steps to guide practice are most useful. Magee (1971) outlined Frankena's map (figure 1) and describes Frankena's work as follows:



William K. Frankena (ed). Introduction to Philosophy of Education. New York: Macmillan, 1965
quoted in Philosophical Analysis in Education. Magee 1971. p.45.

"With this as a frame of reference, he sorts out the desired levels of knowledge that function as our guides to decision making in practical educational affairs. Conclusions at E (judgements about what to do) are a mixture of judgements about the "excellences to be produced" (C) in the beneficiaries of the educational process, combined with "empirical or scientific knowledge about how to produce them" (D). It is important to notice that we cannot derive the list of prescriptions, excellences, that are a set of value judgements about what to do, from the descriptive, empirical, knowledge accounts of what the facts actually are. It is, in short, not possible to go directly from scientific understanding to policy and practice. Practice is always a combination of prescriptive convictions and descriptive understanding.

Going back up the ladder, we can see that C, the list of excellences, is itself a judgment based upon a judicious combination of A, our presuppositions of the basic ends of life and the fundamental principles of right action and right social organization, and B, or presuppositions concerning human nature, life, and the world. This latter concept is itself complex, consisting not only of the empirical or common sense facts about nature, life, and the world as we believe them to be, but also our ultimate presuppositions about existence, our metaphysical beliefs, and existential commitments. These latter can include such notions as belief in God or a naturalistic rejection of such belief.

We can summarize this ladder by saying that E, our concrete conclusion about what to do, presupposed judgments about values (C) and empirical claims (D). C in turn presupposes our ultimate convictions about values and moral principles (A) in combination with our presuppositions, empirical and otherwise, about human nature, life and the world." (Magee, 1971)

When determining a personal or organizational philosophy about the use of technology one must try to be clear about the inter-relationships of the different aspects of philosophy and how they relate in the educational process. Frankena has demonstrated the relationship of theory and practice. Magee has done a marvelous job of explaining the relationships described by Frankena.

I would agree with Frankena that the driving force behind a complete philosophy of education is a social philosophy, a sense of social vision. I would also agree that social philosophy in combination with epistemological and metaphysical concerns play a major role in forming the ethics of a society. But Frankena's approach seems to be a bit too hierarchical. It appears to deny interaction among the varying aspects of philosophy. I believe that any one aspect of philosophy can effect another and there is a more interactive and equal relationship among them than is portrayed in the Frankena model. My point is that a complete and philosophical construct is not necessarily a hierarchial one.

Certainly there is a driving concept but that driving concept is subject to change based on the influence of other aspects of the philosophy at various points in time. In this conception of educational philosophy both philosophical analysis and axiology are relevant concerns at any point during the discourse.

We have seen in the representation of Frankena's "ladder" an attempt to formulate a complete philosophy for education and educational practice. I believe the ladder analogy is a convenient way to visualize the relationship of the various aspects of philosophy to practice and hence is a useful framework through which educational technologists may analyze and develop their practice. However useful this conception is, I find myself feeling that it is not totally accurate.

It is incomplete for two reasons. First, it does not fully represent the thoughts involved in axiology and it seems to ignore the aspect of aesthetics. It has been said that axiology is intertwined with metaphysics and epistemology to the point where the discussion of one leads to an implicit discussion of the other (Koettig, 1983). Frankena seems unwilling to try to separate them. I would fully agree that the three are intertwined and a discussion of one in isolation is next to impossible. Throughout this paper I have emphasized the importance of values and value transfer in the practice of educational technology. I have said that value transfer is the basis for analyzing the hidden curriculum. Value reflection is an activity that is aimed at identifying our presuppositions. For those reasons I would like to emphasize axiology. In the educational endeavor, value inquiry merits a special attention. As a socially construed institution, education is more concerned with issues of value than it is with conceptions of knowledge and reality.

Exclusion of aesthetics from "Frankena's ladder" is a value decision as is my decision to include it. I choose to include it for two reasons. The first is that teaching is an art (Dewey, 1928). The application of science is technology; the application of technology is an art. The second reason is derived from reflection on the field of educational technology and its possibilities in practice. McLuhan (1964) states: "The artist is the man in any field, scientific or humanistic, who grasps the implications of his actions and of new knowledge in his own time." (p.51). I hope that the increased awareness will contribute to the art, the practice of Educational Technology.

Another reason I believe that "Frankena's ladder" is incomplete is that it does not attempt to show the relationships among the differing aspects of Philosophy beyond epistemology, metaphysics, and axiology. I am left with the impression that Frankena does not represent these relationships and does not feel that it is necessary to acknowledge them. The ladder is not unlike a simple algorithm. It is similar in style to many of the models that educational technologists use to represent design and development processes. I do not wish to characterize Frankena as a technicist philosopher, but I think that we have seen that there are relationships between all of the aspects of a complete philosophy.

I should like to point out that this is not the only way to conceive of a complete philosophy of education. There is certainly no one "right" way to do this sort of inquiry. The ideas represented in both the frameworks for a complete philosophy for education are the results of an exercise in logic. In

Frankena's case the social ideal is conceived and then a framework is developed to achieve that ideal. It is important, but not essential that this model identifies a social vision as its aim. This need not always be the case. Conceivably one could develop in the direction of ethics or some other philosophical aspect of education. One advantage to using the complete philosophic framework is that it should serve to reduce the negative side effects of the hidden curriculum. With proper analysis of the concept and possibilities of educational outcome, technologists may be able to devise a process, a hidden curriculum, consistent with their social vision and that of their clients. But this can only be done after a complete philosophical inquiry has been undertaken.

Questions For Future Inquiry

One question that was raised in writing this paper is, "Given this new context from doing educational technology within an educational philosophy, what might a new definition of the field look like?"

Other possibilities include a dialogue on the development of social, ethical, and educational aims. This is certainly a conceptual inquiry and research as to what and how these aims need to be identified and advanced.

Further conceptual analyses of the "factors" of our field would be most welcome, other implicit values and assumptions must be identified. This would certainly be necessary and desirable before we begin to move in the direction of social philosophy. Failure to do so could very well result in something less desirable than we have in current practice.

Another possibility for future research includes the development of a philosophy of science for educational technology. To date, we have seen in the article by Ely, (1970) "Towards the Philosophy of Instructional Technology", a movement away from a physical science concept of technology. I am aware of other works in the area of philosophical inquiry into technology (Becker, 1977; Koetting, 1981; and Lukowski, 1981). A philosophy of science for our field must include aspects of communications theory as well as phenomenology and hermeneutics. It would synthesize ideas from the behavioral science concept, the physical science concept and the mass communications concept, into a social science concept of educational technology. This view should prove to be more conceptual and more naturalistic in practice but this certainly would not lead to the demise of the field. The current paradigm shuns the premise of general system theory that the whole is greater than the sum of its parts. At present it seems as if we are somewhat inconsistent in the way we do our inquiry based on the model we use to conduct our practice.

Egon Guba and John Clark (1974) have suggested three criteria: completeness, balance, and realism by which to assess conceptual structures. I would recommend that this assessment tool be used to analyze the model I have proposed and the component parts of that model as they are further developed.

Finally we must investigate the side effects or potential persuaders in the hidden curriculum. The idea of investigating what are positive and what are negative aspects of the hidden curriculum in relation to current practices is desirable. Again, educational technology must look within itself. Such powerful influences on educational practice cannot be ignored. It must be remembered that even when practitioners and researchers investigate technicism, they are still actors involved with institutions that perpetuate it.⁴

Endnotes

¹The author is interested in contributing to a dialogue on issues involving philosophy and educational technology, and welcomes any comments on this draft.

²I will use the term technicism in order to be consistent and eliminate any confusion for the reader that may come about because of multiple terms.

³I believe that there are nine aspects of philosophy that should be considered when thinking about education and technology applied to education. There are a number of definitions of any of these philosophical aspects but I will provide a brief statement of what it is that I mean by these terms. The

- 1) Social Philosophy - a comprehensive vision about how society ought to be.
- 2) Ethics - a set of moral positions which are consistent and acceptable in relation to the social philosophy.
- 3) Aesthetics - the study and assumptions that guide the inquiry and interpretation of art. One might study art in terms of the management of technology as applied to education.
- 4) Philosophy of Science - the study and assumptions that guide the inquiry and interpretations of the disciplines. For purposes of this paper it will also include the philosophies of history, mathematics, and law.
- 5) Philosophy of Mind - the study and assumptions that guide the inquiry and interpretation of the process of thinking, reflection, and imagination.
- 6) Metaphysics - the assumptions that attempt to characterize existence or reality in its entirety. For purposes of this paper it will be considered as inseparable from epistemology.
- 7) Epistemology - the study and assumptions that guide the inquiry and interpretation of the nature and purview of knowledge.
- 8) Axiology - the study and assumptions that guide the inquiry and interpretations of value.
- 9) Analytic Philosophy - the study and assumptions that guide the inquiry and interpretations of the logic of language.

⁴I would like to acknowledge those who assisted in the preparation of this version of the paper. There are many who contributed. Specifically I would like to thank Alice Berg, Salvu Chircop, James Cox, and Rob Pearson. Thank you.

REFERENCES

- Apple, Michael W. And King, N. (1977). What Do Schools Teach?. Curriculum Inquiry 6 (4), 341-358.
- Apple, Michael W. (1979) Ideology and Curriculum. London:Routledge and Keegan Paul.
- Apple, Michael W. (1982). Cultural and Economic Reproduction In Education: Essays on Class, Ideology and the State. London:Routledge and Kegan Paul.
- Bain, Linda L. (1974). Description and Analysis of the Hidden Curriculum in Physical Education. Unpublished Dissertation. University of Wisconsin.
- Becker, A.D. (1977). Alternative Methodologies for Instructional Media Research. AVCR, (25) 2.
- Bertalanffy, Ludwig von. (1968) General System Theory. New York:Brazillen.
- Cardozo, Benjamin N. (1921). The Nature of the Judicial Process. New Haven: Yale University Press.
- Cowell, Richard N. (1973). The Hidden Curriculum: A Theoretical Framework and A Piolet Study. Unpublished Dissertation. Harvard University, University Microfilms International 73-11, 313.
- Dewey, John (1920). Reconstruction in Philosophy. Boston:Beacon.
- Dewey, John (1928). Progressive Education and the Science of Education, Progressive Education. In R.D. Archambault (ed.), John Dewey on Education: Selected Writings. New York: Modern Library, 1964.
- Dewey, John (1938a). Experience and Education. New York:MacMillan.
- Dewey, John (1938b). The Relation of Science and Philosophy as the basis of education. School and Society. In R.D. Archambault (ed.) John Dewey on Education: Selected Writings. New York: Modern Library, 1964.
- Dreenben, Robert (1969). On What is Learned in Schools. Reading, Mass:Addison-Wesley.
- Ely, Donald P. (1970). "Toward a Philosophy of Instructional Technology." British Journal of Educational Technology, I, (2) 81-94.
- Farganis, James (1975). A Preface to Critical Theory. Theory and Society 2, (4), 483-508.
- Flechsigg, Karl-Heinz (1975). Towards a Critical Appraisal of Educational Technology Theory and Practice of Educational Technology Theory and Practice. First Educational Technology Theory and Policy Workshop. Strasbourg: November, 1975.

- Flew, Anthony (1979). A Dictionary of Philosophy. New York: St. Martins.
- Frankena, William K. (ed.) (1965). Introduction to Philosophy of Education. New York: MacMillan.
- Friere, Paulo (1970). Pedagogy of the Oppressed. New York: Continuum.
- Gerbner, George (1974). Teacher Image in Mass Culture: Symbolic Functions of the "Hidden Curriculum." In D.R. Olson (ed.) Media and Symbols: The Forms of Expression, Communication, and Education. Chicago: The University of Chicago Press. (pp 470-497).
- Guba, Egan and Clark, John (1974). The Configurational Perspective: A View of the Educational Knowledge, Production and Utilization. A paper prepared for CEDaR Annual Meeting. Washington, D.C.: Council for Educational Research and Development.
- Hyman, Ronald T. (1973). Individualization: The Hidden Agenda. The Elementary School Journal (5).
- Hyman, Ronald T. (1974). Ways of Teaching. New York: Harper and Row.
- Jackson, Phillip (1968). Life in Classrooms. New York: Holt, Rinehart and Winston.
- King, Nancy R. (1977). The Hidden Curriculum and the Socialization of Kindergarten Children. Unpublished Dissertation. University of Wisconsin. University Microfilms International 77-6614.
- Kliebard, Herbert M. (1977a). Curriculum Theory: Give Me a For Instance. Curriculum Inquiry, 6 (4) 257-269.
- Kliebard, Herbert M. (1977b). The Tyler Rationale. In A.A. Bellack and H.M. Kliebard (eds.) Curriculum and Evaluation. Berkeley: McCutchan (pp. 56-67).
- Koetting, Randall J. (1981). Reconceptualizing the Theory-Base of Educational Technology: Re-Opening the Theory Practice Debates. Proceedings of Selected Research Paper Presentations. AECT Research and Theory Division, Philadelphia Convention, April.
- Koetting, Randall J. (1983). Philosophical Foundations of Instructional Technology. Research and Theory Symposium. AECT, New Orleans Convention, January.
- Lukowsky, J. (1981). Reconstructing the History of Educational Technology Provides Us With New Models for Research. Proceedings of Selected Research Paper Presentations. AECT, Research and Theory Division, Philadelphia, April.
- Magee, John B. (1971). Philosophical Analysis in Education. New York: Harper and Row.
- McLuhan, Marshall (1962). The Gutenberg Galaxy. Toronto: University of Toronto Press.
- McLuhan, Marshall (1964). Understanding Media. New York: McGraw Hill.

- Olds, Henry F. (1985) "The Microcomputer and the Hidden Curriculum." Computers in the Schools (2), (1), 3 - 14.
- Pappert, Seymour (1980). Mindstorms. New York: Basic.
- Rogers, Carl R. (1969). Freedom to Learn. Columbus: Merrill.
- Rogers, Carl R. (1983). Freedom to Learn from the 80's. Columbus: Merrill.
- Romisowski, A.J. (1981). Designing Instructional Systems. London: Kogan Page.
- Schon, Donald A. (1983). The Reflective Practitioner. New York: Basic.
- Schramm, Wilbur (1977). Big Media, Little Media. Beverly Hills: Sage.
- Silberman, Charles. (1970). Crisis in the Classroom. New York: Random House.
- Stanley, Manfred (1978). The Technological Conscience. New York: Free Press.
- Vallance, Elizabeth (1974). "Hiding the Hidden Curriculum." Curriculum Theory Network IV (15).
- Weidemann, Cecilia J.K. (1973). The Hidden Curriculum: Conceptual and Empirical Issues Surrounding Non-Academic Aspects of Schooling. Unpublished Dissertation. University of Wisconsin.
- Young, Michael F. (ed.) (1971). Knowledge and Control. London: MacMillan.
- Young, Michael F. (1973). Curriculum and the Social Organization of Knowledge. In R. Brown (ed.) Knowledge, Education and Cultural Change. London: Tavistock.